### DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

### LAKE TROPHIC DATA

### MORPHOMETRIC:

Lake: SHAW POND		Lake Area (ha):	0.65
Town: FRANKLIN		Maximum depth (m):	8.4
County: Merrimack		Mean depth (m):	3.7
River Basin: Merrimack		Volume (m³):	24000
Latitude: 43°26'11"		Relative depth:	9.3
Longitude: 71°41'31"	W	Shore configuration:	1.12
<pre>Elevation (ft):</pre>	770	Areal water load (m/yr)	: 20.07
Shore length (m):	320	Flushing rate $(yr^{-1})$ :	5.40
Watershed area (ha):	28.5	P retention coeff.:	0.48
<pre>% watershed ponded:</pre>	0.0	Lake type:	natural

BIOLOGICAL:	8 January 1996	11 September 1995
DOM. PHYTOPLANKTON (% TOTAL) #1	DINOBRYON 50%	MALLOMONAS 55%
#2	(ALL ALGAE SPARSE)	ANACYSTIS 15%
#3		
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		23.02
DOM. ZOOPLANKTON (% TOTAL) #1	LRG SOLI PERITRICH 64%	KERATELLA 35%
#2	KERATELLA 27%	KELLICOTTIA 25%
#3		
ROTIFERS/LITER	37	271
MICROCRUSTACEA/LITER	7	29
ZOOPLANKTON ABUNDANCE (#/L)	121	340
VASCULAR PLANT ABUNDANCE		Scat/Common
SECCHI DISK TRANSPARENCY (m)		2.0
BOTTOM DISSOLVED OXYGEN (mg/L)	0.9	0.5
BACTERIA (E. coli, #/100 ml) #1		1
#2		
#3		

### SUMMER THERMAL STRATIFICATION:

### stratified

Depth of thermocline (m): 3.7 Hypolimnion volume  $(m^3)$ : 2250 Anoxic volume  $(m^3)$ : 8500

CHEMICAL:			SHAW PONI FRANKLIN		
	8 Janua	ary 1996	11 8	September	1995
DEPTH (m)	2.0	5.0	1.0	4.0	7.0
pH (units)	5.5	5.7	6.1	5.7	6.1
A.N.C. (Alkalinity)	2.6	2.8	4.5	3.1	9.9
NITRATE NITROGEN	< 0.10	< 0.10	< 0.10		< 0.10
TOTAL KJELDAHL NITROGEN	0.30	0.41	0.33	0.43	1.21
TOTAL PHOSPHORUS	0.007	0.014	0.018	0.031	0.058
CONDUCTIVITY (µmhos/cm)	22.3	20.8	16.2	18.3	26.3
APPARENT COLOR (cpu)	40	48	55	55	120
MAGNESIUM			0.54		
CALCIUM			0.9		
SODIUM			0.9		
POTASSIUM			< 0.40		
CHLORIDE	< 2	< 2	< 2		< 2
SULFATE	3	3	2		1
TN : TP	43	29	18		21
CALCITE SATURATION INDEX			4.6		1.00

All results in mg/L unless indicated otherwise

### TROPHIC CLASSIFICATION: 1995

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	4	2	4	14	Eutro.

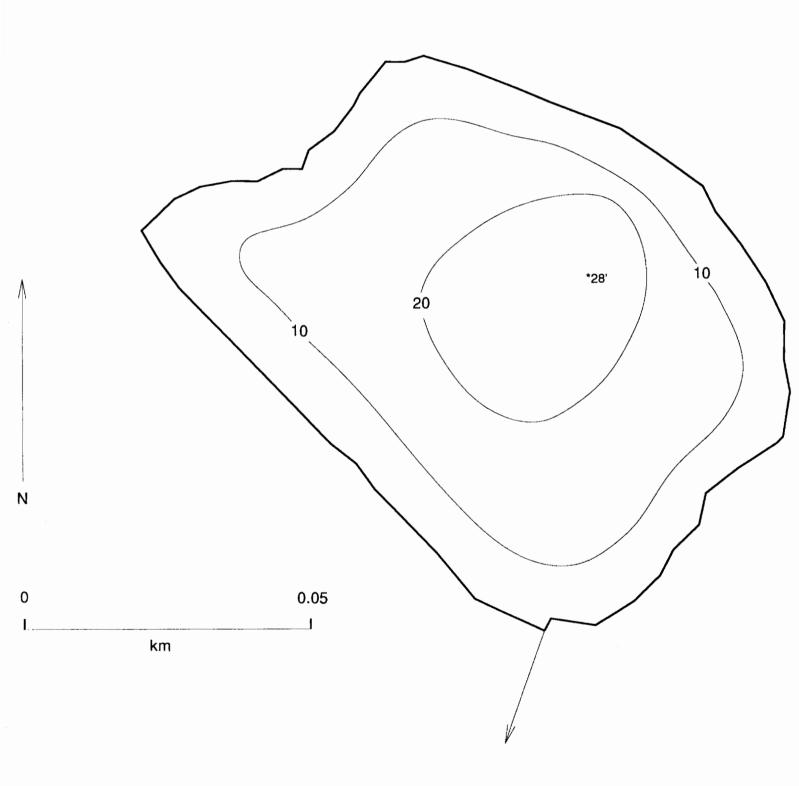
### COMMENTS:

- 1. This is a very small (less than 2 acres) but relatively deep (28 feet) and somewhat remote pond surveyed cooperatively with the Fish and Game Department.
- 2. Access to the pond was by a 4-wheel drive road in very poor condition.
- 3. It is a tea-colored, somewhat acidic, eutrophic pond, with high chlorophyll, poor water clarity and no dissolved oxygen below 3 meters. Interestingly, the net phytoplankton community was relatively sparse; the high chlorophyll was apparently the result of an abundant nannoplankton community.

# **Shaw Pond**

## Franklin

10 foot depth contours



#### FIELD DATA SHEET

LAKE: SHAW POND

TOWN: FRANKLIN

DATE: 09/11/95 WEATHER: SUNNY, COOL & WINDY

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	17.5	5.5	56 %
	1.0	17.2	5.1	53 %
	2.0	17.0	4.8	49 %
	3.0	16.0	0.5	5 %
	4.0	11.0	0.5	4 %
	5.0	7.8	0.4	3 %
	6.0	6.0	0.5	4 %
	7.0	6.0	0.5	4 %
	7.5	6.0	0.5	4 %
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-				
				1100

SECCHI DISK (m): 2.0 COMMENTS:
BOTTOM DEPTH (m): 8.0

The anoxic water below 3 meters

smelled strongly of hydrogen sulfide and

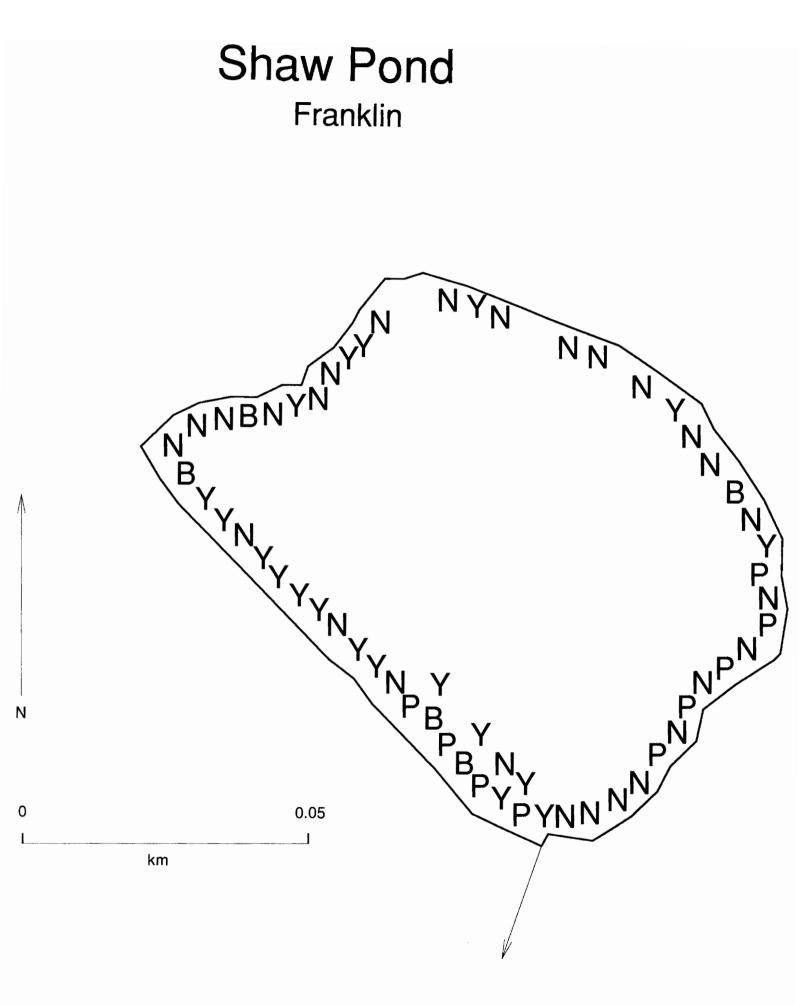
had a green tint (green sulfur

bacteria?).

\*Dissolved oxygen values are in mg/L

TIME: 1015

## Shaw Pond



### AQUATIC PLANT SURVEY

LAK	E: SHAW POND	TOWN: FRANKLIN	DATE: 09/11/95	
PLANT N		NAME	ADIDIDANGE	
Key	GENERIC	COMMON	ABUNDANCE	
P	Pontederia cordata	Pickerelweed	Sparse	
N	Nymphaea	White water lily	Scattered	
Y	Nuphar	Yellow water lily	Scattered	
d	Dulichium arundinaceum	Three-way sedge	Sparse	
В	Brasenia schreberi	Water shield	Sparse	
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### OVERALL ABUNDANCE: Scat/Common

### **GENERAL OBSERVATIONS:**

- 1. This pond is located in the middle of a large wetland. The wetland consists of large dead trees, woody shrubbery such as leatherleaf, and soft-stemmed plants such as pitcher plants and lilies.
- 2. An old dock crosses the wetland to the pond.